REMARKS

Prior to the present amendments, Claims 1-7, 9-11, 13, 14, 17-23 and 29 were pending in the application. Claims 1-3 and 17-23 were withdrawn from consideration and claims 4-7, 9-11, 13 and 14 were rejected.

After the present amendment, claims 4, 6, 7, 9-11, 13, 14, 17-23 and 29 are pending.

Amendments

Claim 4 is now an independent claim, and has been amended to recite all of the limitations of previously presented claims 1 and 5.

Likewise, Claim 29 is now an independent claim, and has been amended to recite all of the limitations of previously presented claims 1 and 5 relative to the coating material components.

Claim 17 has been amended so that it is clearly of the same scope as product claim 4.

Claims 1-3, and 5 have been cancelled without prejudice to expedite prosecution.

Claim Rejections – 35 USC § 102

Claims 4 and 7 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,444,601 to Purcell et al. (hereinafter "Purcell").

Claim 4 as amended requires that the coating material comprises a rheological additive comprising illite clay, smectic clay and an attapulgite; wherein the coating material comprises

0.1 to 10 wt.-% of the illite clay,

0.1 to 10 wt.-% of the smectic clay, and

0.1 to 10 wt.-% of the attapulgite.

Purcell relates to a method for purifying attapulgite clay, according to which non-clay matter and non-attapulgite clays like montmorillonite, smectites and sepiolite are separated from the attapulgite. As noted in the Summary of the Invention of Purcell, an object of the invention is "to provide an economical and efficient method to separate

Attapulgite clay from other clay components and minerals in clay ore." See column 3, lines 3-5. It is desirable to remove the other clays, because "the non-Attapulgite clays do not have the same performance characteristics as Attapulgite clay, some which are detrimental to performance in particular applications." Column 2, lines 22-25. The product of the Purcell process is a purified dried, particulate attapulgite clay comprising attapulgite clay separated from non-clay matter, the attapulgite clay having a free moisture content of approximately 2-3%. Column 3, lines 56-59.

As noted in the Office Action, Purcell discloses a composition comprising 60% of attapulgite, and 35% of smectic clay. Contrary to the assertion in the Office Action, the actual amount of illite in the samples is not reported, because the amount of illite is reported in combination with mica, and is not separately identified. See column 6, line 64.

Purcell does not disclose a coating material that comprises 0.1 to 10 wt.-% of the illite clay, 0.1 to 10 wt.-% of the smectic clay, and 0.1 to 10 wt.-% of the attapulgite as required in the present claims. Claims 4 and 7 as amended therefore are not anticipated by Purcell. Reconsideration and withdrawal of this rejection is therefore respectfully requested.

Claim Rejections – 35 USC § 103

Claims 4-6 and 11 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,164,433 to Ricci et al (hereinafter "Ricci"), in view of U.S. Patent No. 6,444,601 to Purcell et al.

Ricci et al. discloses a rheological additive for latex paints comprising smectic clay, a starch and a polymer or a copolymer. Hectorite is the preferred clay (cf. Ricci at column 4, lines 15-18, column 6, lines 66-68 and Table 2, column 7.). A combination of clays according to the present invention is not disclosed or fairly suggested.

As noted above, Purcell relates to a method for purifying attapulgite clay, according to which non-clay matter and non-attapulgite clays like montmorillonite, smectites and sepiolite are separated from the attapulgite. The Purcell reference notes that the eventual slurry that can be formed from the purified attapulgite is diluted down to a lower concentration as would be used in suspension fertilizers. Purcell does not teach use of a binder, even in the final product. See column 4, lines 28-33. Further, Purcell

teaches away from the use of non-attapulgite clays. Thus, it is taught that other clays do not show the same performance characteristics as attapulgite and are often detrimental to performance (cf. Purcell at column 2, line 23-25).

It is respectfully submitted that the combination of these two references is not proper, because the Ricci disclosure seeks to make a latex paint using a starch and polymer in combination with a non-specific clay, while Purcell seeks to provide a highly purified attapulgite for a different purpose. The skilled artisan would have had no reason to combine these references, and even in combination would not have resulted in a composition meeting the clay and amount selections required to satisfy the requirements of the preset claims. Specifically, the combination of references would have resulted in the use of a purified attapulgite in combination with starch and a polymer as part of a latex paint. The person skilled in the art would have had no reason to select the specific combination of the three clays required (i.e. attapulgite clay, illite clay and smectic clay) in the ratios and amounts set forth in the present claims in order to form coating materials, particularly for porous bodies. Further, the skilled artisan could not have predicted that such a combination of clays in amounts as presently required would solve rheological problems for use in refractory materials in foundry technology. See pages 6 and 7 of the present application.

It is respectfully submitted that the present invention defines a unique coating material that would not have been obvious from the prior art.

Claims 4, 9 and 10 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,728,531 to Matz et al. (hereinafter "Matz"), in view of U.S. Patent No. 6,444,601 to Purcell et al.

Matz teaches a method for dehydrating a water-based coating. The coating is made by the use of a slurry comprising a silica water suspension including a small portion of clay to impart thixotrophic properties. No more information is given about the clays used. Thus, Matz does not provide information that would lead the skilled artisan to select any specific type of clay for use in a composition. Matz therefore does not bridge the gap between Purcell and the present claims.

Even considering Matz in combination with Purcell, the skilled artisan would have had no reason from the prior art to select the specific combination of the three clays (i.e. attapulgite clay, illite clay and smectic clay) in the ratios and amounts in order to form coating materials, and could not have predicted the beneficial properties achieved by the present coating composition and method.

Claims 4, 13 and 14 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,015,045 to Rinehart (hereinafter "Rinehart"), in view of U.S. Patent No. 6,444,601 to Purcell et al.

Rinehart discloses glass compositions suitable for strengthening by ion exchange and a method for strengthening a glass article by treatment with alkali salts. The alkali salt can be mixed with a thixotropic clay as a coherent, inert carrier to form a paste which is applied on the glass surface. This reference relates a technical area that is completely different from that described in Purcell, and combination of these references is not its face improper. Further, Rinehart provides no description whatsoever as to the identity of the clay, and therefore does not provide information that would lead the skilled artisan to select any specific type of clay for use in a composition. Rinehart therefore does not bridge the gap between Purcell and the present claims.

Even considering Rinehart in combination with Purcell, the skilled artisan would have had no reason from the prior art to select the specific combination of the three clays (i.e. attapulgite clay, illite clay and smectic clay) in the ratios and amounts in order to form coating materials, and could not have predicted the beneficial properties achieved by the present coating composition and method.

Claim 4 has been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,925,182 to Patel et al (hereinafter "Patel").

Patel discloses a stable liquid suspension useful in oil field applications such as additives for drilling fluids, completion fluids, work over fluids or cements. The suspension described therein can be used as an environmentally friendly additive in water-based fluids. The composition comprises an organic fluid as liquid carrier, a fatty acid or a salt thereof and solid particulate. The water-based fluids can contain clay – any kind of

clay. See column 7, lines 60-61. The preferred clay is sodium montmorillonite. See column 7, lines 65-66.

The skilled artisan would have had no reason from the Patel disclosure to select the specific combination of the three clays (i.e. attapulgite clay, illite clay and smectic clay) in the ratios and amounts required in the present claims in order to form coating materials, and could not have predicted the beneficial properties achieved by the present coating composition and method.

It is respectfully submitted that the presently claimed invention is not obvious in view of the references identified in the outstanding Office Action, when considered separately or in combination. Reconsideration and withdrawal of the outstanding rejections under 35 U.S.C. 103(a) is therefore respectfully requested.

CLAIMS WITHDRAWN FROM CONSIDERATION

The application as originally filed discloses the product and the process for making and/or using the product, the product being the coating material as claimed in present claims 4, 6, 7, 9-11, 13 and 14. Additional claims currently pending relate to the process for making this product and the process for using this product, and are of the same scope as the product claims. Rejoinder of these claims in accordance with the rejoinder procedure outlined in MPEP 821.04 is respectfully requested.

Conclusion

In view of the above amendments and remarks, it is respectfully submitted that the foregoing is fully responsive to the outstanding Office Action. Early favorable consideration and passage of the above application to issue is earnestly solicited. In the event that a phone conference between the Examiner and the Applicant's undersigned

attorney would help resolve any issues in the application, the Examiner is invited to contact said attorney at (651) 275-9811.

Respectfully Submitted,

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By: _____
Dale A. Bjorkman, Reg. No. 33,084
Customer No. **33072**
Phone: 651-275-9811
Facsimile: 651-351-2954

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